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ABSTRACT

While the educational structure seems to meet the needs of most students, a small but significant minority does not see the need to complete high school. To improve the identification of potential dropouts and describe the differences between dropouts and persisters, 536 Kentucky high school students and dropouts were studied. An unexpected outcome was that urban and rural differences were observed on many of the family, personal, and subjective variables. Dropouts were more likely to: (1) be from broken homes; (2) have parents with lower educational levels and occupational status; (3) be white males who were retained more often than persisters; (4) have lower IQ scores; (5) be absent from school; and (6) not get along well with teachers. The findings suggest specific variables related to the dropout/persister problem. (JAC)

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Identifying Potential Dropouts

A Research Report

Donald L. Martin, Jr.
Superintendent of Southgate Independent Schools

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Office of Research and Planning
Kentucky Department of Education
Frankfort

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Message from the Superintendent

Our elementary and secondary school system has evolved with the intent of meeting the needs of all children. The needs range from the most basic social skills such as learning to relate to other people, to the most complex academic skills. Clearly our educational structure is meeting the needs of most of our students at a level which is adequate in that most students understand the need to obtain a high school diploma. There is a small but significant minority that does not see the need to complete high school, or does not perceive itself as having the ability to continue toward the goal of obtaining a high school diploma. These students drop out. They represent an undeterminable but considerable loss to our society because most of these "school dropouts" never get the opportunity to develop their capabilities beyond a minimum level.

Over the years, the debate has continued over what can be done for the school dropouts. Educators have long felt that the best means of helping the school dropout is to have identified the potential dropout at the earliest possible time.

There were two major purposes of the study. The first was to improve our ability to identify potential school dropouts through the use of data available to school personnel. The second was to describe the differences between school dropouts and school persisters, those students who chose to continue in school.

The procedure being offered in this study for identifying potential dropouts is intended to be a beginning point. It is hoped that educators interested in identifying potential dropouts will study the results reported here, experiment with the use of this methodology, and evaluate its effectiveness. The experimentation and evaluation of the identification procedures summarized here should result in an overall improvement of our ability to identify those students who are probable dropouts. As we improve our dropout identification abilities, it is important that we continue to develop and evaluate dropout prevention activities. There is little to be gained if we merely develop our ability to identify potential dropouts. Our attention must remain focused on the prevention of school dropouts.

Raymond Barber

Raymond Barber
Superintendent of Public Instruction

Foreword

The following report is a summary of the doctoral dissertation written by Donald L. Martin, Jr., who is currently Superintendent of Southgate Independent Schools. This study was completed for the Kentucky Department of Education through the Office of Research and Planning during the 1979-80 school year. During this period, Dr. Martin was employed as an intern in the Office of Research and Planning, in cooperation with the University of Kentucky. The Kentucky Department of Education feels most fortunate to have obtained the services of Don Martin in completing this project. The results of this study should contribute to our understanding of the dropout in our educational system. The complete document is available upon request from the Office of Research and Planning.

The Research Unit staff would like to extend appreciation to every high school counselor and director of pupil personnel who participated in this study. These people provided invaluable help in locating dropouts and randomly selecting persisters. The seven rural county districts which participated were: Anderson, Henry, Ohio, Owen, Perry, Rowan and Trigg. The one urban district that participated was Jefferson County.

A special thanks is extended to the 536 dropouts who responded either by mail or personal interview to the dropout questionnaire, and the 536 persisters who completed the persister instrument. Their willingness to cooperate greatly simplified the data collection process.

Clyde Caudill
Head, Office of Research and Planning

Identifying Potential Dropouts

Summary of Purposes and Procedures

It was the purpose of this study (1) to identify certain family, personal, and subjective characteristics that contribute to a student's dropping out of the Kentucky educational system, and (2) to predict which students will leave school early. The first purpose was accomplished by (1) a review of previous research that identified 45 variables that have been found to be related to students dropping out of school, and (2) the suggestions of the instrument construction panel that identified six additional variables that they felt were related to students leaving school prematurely. The second purpose was accomplished by (1) examining the relationship between each of the 51 identifed characteristics and the dependent variable dropout/persister*, (2) developing descriptive profiles using the total population studied and four subsamples of the population, and (3) constructing five regression equations, one for each of the descriptive profiles, capable of predicting which students are likely to drop out of school.

The sample consisted of 536 dropouts; 273 from the selected urban area and 263 from seven selected rural counties, as well as 536 randomly sampled persisters who were matched with each dropout by the school attended and the grade in which the dropout was enrolled before leaving school. Each dropout in the study completed a questionnaire that was prepared by an expert panel which consisted of six members of the Kentucky Department of Education. Over 78 percent of the dropout sample completed the questionnaire at home and returned it by mail. The remaining 22 percent of the sample was interviewed by phone or in person. All of the persisters completed a companion questionnaire which was also prepared by the expert panel and administered at their school in a group setting. In addition, the collected data were coded onto forms, keypunched, and verified. The descriptive profiles were developed, various hypotheses tested, and the regression equations constructed with the aid of several SAS computer procedures.

Summary of Findings

For 44 of the 51 variables identified, it was possible to prepare a statement of expected outcomes. Actually, there were a total of 56 expected outcomes since two variables had more than one level; i.e., "Attendance" had 12 levels, one for each grade, and "Achievement" had 2 levels, average reading stanine score for elementary school (grades 1-6), and average reading stanine score for junior high and high school (grades 7-12). Each of the expected outcomes was examined across five profiles: the total profile which includes all subjects, and four subprofiles; i.e., urban, rural, female, and male. Of the 56 expected outcomes, 38 were verified in all 5 profiles, and 9 were verified in at least 1 profile. Nine were not verified in any profile. Of the 9 expected outcomes that were not verified in any profile, six were related to one variable, "Attendance."

* A dichotomous variable which assigned a zero to a student who had dropped out and a one to a student who was still in school.

The other three were related to the following three variables: "Race," "Indicated a most difficult grade (yes or no)," and "Number of grades did not get along well with other students in junior high school."

Expected outcomes were not stated for four variables, either because the literature reviewed was mixed on these variables, or because there was no literature found that examined that particular variable. However, for each of these variables, a consistent relationship between dropouts and persisters was observed in all of the descriptive profiles. The four variables included: "Position of child in family," "Age difference between next older sibling," "Hours worked per week on a farm," and "Hours worked per week on a non-farm job."

Expected outcomes were not stated for the two variables "Reasons considered dropping out of school" and "With whom students talked while considering leaving school," because few studies had examined these variables for both dropouts and persisters. Although quite a few of the persisters indicated that they had never considered leaving school before graduation, 16 percent of the total sample indicated that it had.

In general, those dropouts and persisters who answered the question regarding reasons for leaving school rank-ordered their reasons in much the same way. The most often checked reason for both dropouts and persisters was "Had poor grades and did not think I would graduate." In addition, the data indicated that persisters were less likely to check as many reasons as dropouts. Dropouts, in all descriptive profiles, were much more likely than persisters to check the two reasons that related to dissatisfaction with school; i.e., "School was not teaching me what I wanted to know," and "Disagreed with school discipline policy."

Also, those dropouts and persisters who indicated with whom they discussed their concerns over while considering leaving school, tended to rank-order the suggested list of persons in the same way. Dropouts, in all descriptive profiles, talked with their parents more often than with any other person; with their friends the second most often. Persisters, in all profiles, indicated that friends were talked with more often than parents. Dropouts were much more likely to talk with school personnel than were persisters; however, urban dropouts talked with school personnel more frequently than rural dropouts. Female dropouts were more likely to talk with parents and friends than males. Males were more likely than females to talk with no one.

One variable for which no expected outcome was stated was "Residence," which identified a student by urban or rural area. No expected outcome was stated for this variable because residence could not be examined independently. Since nearly equal urban and rural samples were selected, the urban and rural comparisons were made between each of the other variables in the study. Urban and rural differences were observed between measures on many of the family, personal, and subjective variables studied. These differences clearly indicated that the nature of the community affects many variables that were found to be important factors in predicting if a student will leave school prematurely.

Since 51.5 percent of the identified dropouts in this study was never contacted and was not included in the study, it was considered important to investigate whether the non-respondents were in some way different from those who responded. The 21 percent of the dropouts

sampled who did not respond to the questionnaire mailings but who were eventually interviewed over the telephone or in person, were considered to be a non-respondent sample. Thus, non-respondent (n=114) and respondent (n=422) profiles were developed and compared to determine if those people who did not respond to the mailed questionnaire were different from those who did respond by mail.

Differences were observed on several variables between the respondent and non-respondent profiles. The observed differences, however, could be explained primarily by four reasons: the male/female and urban/rural compositions between the two profiles were different; there were large differences in the number of subjects in each profile; the non-respondents were not able to give anonymous responses and were perhaps more likely to give answers that would show them in the best light; and the non-respondents were able to ask for clarification on some questionnaire items. Consequently, the respondent and non-respondent profiles were judged to be nearly the same.

A null hypothesis was stated for 48 of the 51 variables. The three variables excluded were "whether a student considered dropping out of school (yes or no)," "With whom students talked while considering leaving school," and "Residence." One of the 48 variables, "Attendance," had 12 null hypotheses, one for each grade level. The variable "Achievement," had two null hypotheses, one for average stanine scores in elementary school (grades 1-6) and the other for average reading stanine scores in junior high and high school (grades 7-12). Thus, a total of 60 null hypotheses were stated. The null hypotheses were tested at the .05 significance level, using only the total dropout and persister samples. Since nine of the variables were dichotomous, a phi correlation coefficient was used to examine the relationship between these variables and the dependent variable dropout/persister and to test the null hypotheses. A point biserial correlation coefficient was used to examine the relationship between the remaining 39 variables and the dependent variable dropout/persister and to test the 51 null hypotheses associated with these variables.

Of the 60 null hypotheses tested, 47 were rejected at the .05 significance level and 13 were accepted. Of the 47 rejected hypotheses, 37 of the associated expected outcomes for the total sample were verified, i.e., although the null hypotheses were accepted for these six variables, the sign of the correlation coefficient was in the direction of that suggested by the expected outcomes. Since 14 of the rejected hypotheses were associated with the two variables "Attendance" and "Achievement," a total of 37 of the 51 identified variables were found to have a significant relationship to a student dropping out of school.

The following 32 conclusions can be drawn about dropouts and persisters from this study:

1. Dropouts were more likely than persisters to be living in a broken home.
2. The educational level of dropouts' fathers was less than the educational level of persisters' fathers.
3. The educational level of dropouts' mothers was less than the educational level of persisters' mothers.
4. Fathers of dropouts ranked lower than persisters' fathers on Duncan's Occupational Status Scale.

5. Mothers of dropouts ranked lower than persisters' mothers on Duncan's Occupational Status Scale.
6. Dropouts were more likely to come from lower income families than persisters.
7. Dropouts generally came from larger families than persisters.
8. Dropouts had more older siblings than persisters ("Position in family" variable).
9. Dropouts had more older siblings who dropped out of school than persisters had.
10. Families of dropouts owned fewer cars than families of persisters.
11. Families of dropouts were less likely to own their home than families of persisters.
12. Dropouts' fathers were less likely to be involved in school-related organizations than persisters' fathers.
13. Dropouts were more likely than persisters to be white males.
14. Dropouts were less likely than persisters to have attended kindergarten.
15. Dropouts were retained more often than persisters.
16. Dropouts were over-age for their grade when they left school.
17. Dropouts had lower average IQ scores than persisters.
18. Dropouts had lower average reading stanine scores in elementary school (grades 1-6) as well as in junior high and high school (grades 7-12) than persisters.
19. Dropouts were absent more often in every grade than persisters.
20. Dropouts participated in school-sponsored extracurricular activities for fewer grades in junior high school than persisters.
21. Dropouts participated in school-sponsored extracurricular activities for fewer grades during their entire school career than persisters.
22. Dropouts participated in outside of school activities for fewer grades in junior high school than persisters.
23. Dropouts participated less in outside of school activities during their entire school career than persisters.
24. Dropouts drove a car to school during more grades than persisters.
25. Dropouts worked more hours per week on a farm than persisters.
26. Dropouts worked more hours per week on a non-farm job than persisters.
27. Dropouts were sent to the principal's office for misbehavior during more grades in junior high school than persisters.
28. Dropouts were sent to the principal's office for misbehavior during more grades in their entire school career than persisters.
29. Dropouts disliked school during more grades in junior high school than persisters.

30. Dropouts disliked school during more grades in their entire school career than persisters.
31. Dropouts did not get along well with teachers during more grades in junior high school than persisters.
32. Dropouts did not get along well with teachers during more grades in their entire school career than persisters.

Next, five regression equations were constructed using all the variables that were not dichotomous. (Twelfth grade attendance was not used, since data was available for less than 10 percent of the dropouts and persisters.) A total regression equation, urban and rural regression equations and male and female regression equations were constructed.

Five null hypotheses were stated relative to the regression equations. Since for each equation the multiple correlation coefficient was significant at the .0001 level, the regression null hypotheses were rejected. The amount of variance accounted for by each of the regression equations ranged from 59.3 percent for the rural equation, to 71.8 percent for the urban equation. Thus, over 59 percent of the variance in the dropout/persister variable in each equation was predictable on the basis of the particular set of independent variables associated with each equation.

Since the regression equations all required attendance data for the ninth, tenth, and eleventh grades, they were judged to be inappropriate for predicting dropouts at grades earlier than the twelfth grade. Consequently, these variables were removed from the equations and new regression equations were constructed capable of predicting dropouts at the ninth grade level. As before, the ninth grade regression equations were significant at the .0001 level and the variance accounted for by each equation ranged from 31.6 to 50.7 percent.

Implications for School Counselors

Aside from identifying for counselors those 32 variables which were found to be significantly related to the dropout/persister variable, the most practical and usable results for school counselors are the regression equations, which provide an objective way to target potential dropouts. The original set of equations could be used for identifying seniors who may drop out; however, the most useful equations would be those constructed for ninth graders. The particular equation that a counselor uses is dependent upon (1) whether the student lives in an urban area or a rural area as defined in this study, (2) the amount of variance accounted for by each equation, and (3) the grade the student is in. If, for example, the student was in the twelfth grade and lived in an urban area, the original urban regression equation should be used since attendance data for grades 9, 10, and 11 are available, and the original urban regression equation accounted for more variance than the original total, male or female equations. Similarly, if a student were a ninth grade rural student, it would be necessary to know the student's sex. If the student were a female, the female ninth grade equation should be used since this equation accounted for the second highest amount of variance. If the student were male, the total regression should be used since it accounts for more variance than the male or rural ninth grade equations.

To demonstrate the usefulness of the ninth grade regression equations, a hypothetical example will be presented. Assume a ninth grade counselor in an urban high school wishes to identify potential dropouts in an incoming freshman class. For each student, the following pieces of information would have to be collected:

1. The number of days absent in grade 1 (X_1)
2. The number of days absent in grade 6 (X_2)
3. The number of days absent in grade 8 (X_3)
4. The student's age (X_4)
5. An average IQ score (X_5)
6. An average reading achievement stanine score in elementary school (X_6)
7. The total number of grade retentions (X_7)
8. The number of grades sent to the principal's office during junior high school (X_8)
9. The number of years the student drove a car to school (X_9)
10. The number of hours per week the student worked on a non-farm job. (X_{10})

The first seven items can be obtained from each student's permanent record; the last three items would have to be obtained from the student on an information form of some sort. To illustrate further, assume John Doe has the following values for the ten items listed earlier.

1. Days absent grade 1 = 25
2. Days absent grade 6 = 35
3. Days absent grade 8 = 21
4. Age = 15
5. Average IQ score = 83
6. Average reading stanine score elementary school = 3.8
7. Total number of retentions = 1
8. Number of grades sent to the principal's office in junior high = 3
9. Number of grades drove a car to school = 0
10. Hours worked per week on a non-farm job = 25

When these values are substituted into the ninth grade urban regression equation, the score is -.16, which indicates that John Doe is a potential dropout. Theoretically, if the multiple correlation coefficient was one, no predicted score would fall outside the range zero to one. However, since the multiple R is not equal to one, the range of predicted scores will be larger. In fact, if the minimum and maximum values of these variables are used, the predicted score ranges from -2.81 to 1.91. When the mean values are used, the predicted score is .53. This indicates that students whose predicted scores are greater than .53 are more likely to "persist" than students whose predicted scores are less than .53.

Although this example illustrates the potential usefulness of these equations, other results of this study magnify their importance. Analysis of the data indicated that less than 29 percent of the urban dropouts and less than 12 percent of the rural dropouts indicated that they had talked over their concerns about leaving school with their school counselor. These low percentages are not surprising when one considers (1) that the motivation to seek a counselor's advice usually comes from the student, and (2) that dissatisfaction with school is a likely reason for wanting to drop out of school. The ability to identify potential dropouts in an objective fashion allows counselors to initiate contact with potential dropouts and their families. The importance of contacting the parents of dropouts is underscored when one notes that nearly 50 percent of all dropouts reported that they talked over their concerns about leaving school with their parents.

Thus, until alternative forms of education are developed and implemented that will help provide for the needs of identified potential dropouts, the objective knowledge that a particular student is likely to leave school should provide the counselor with support material which should aid in counseling the student. A conference with a targeted student and his or her parents about the student's regression equation score would serve as an early warning to both the student and his or her parents. This type of frank discussion may cause the student to view his or her current schooling experience in a new light and to consider alternative education programs as a viable option.

Recommendations for Further Study

The completion of this project suggests three projects which should now be undertaken that are directly related to this research effort. In addition, the large quantity of data collected in this study provides a substantial data base for initiating preliminary investigations into areas not directly related to this study. The three related recommended projects are discussed below:

Dropout Prevention Programs

As was alluded to earlier, the ability to identify potential dropouts is an important prerequisite to the development of alternative forms of education and/or arrangements to provide for the needs of persons likely to leave school. Since potential dropouts can now be identified, it is the task of the educators to develop prevention programs that will alter the attitudes as well as meet the academic needs of those students. Certainly, the 32 conclusions stated earlier should prove useful in the development of alternative programs.

To further assist in the development of appropriate programs for these students, a review of some current dropout prevention programs should prove helpful. An article in the June 2, 1980, issue of *U.S. News and World Report* highlighted six new dropout prevention programs in different parts of the country. These include: The Edison Project in

Philadelphia; Operation Far Cry in New York City; The Hold Youth Program in Denver; the Community Christian Alternative Academy in Chicago; a new work study program in Milwaukee; and 13 new alternative education programs in Illinois.

In addition, the article noted that Colorado has established pilot programs at six state schools to study the effect of school environment on behavior and learning. William Van Buskirk, a senior consultant to the Colorado projects, noted that "While we can't change the home or neighborhood environment, we can alter the school environment to reduce the rate of dropping out" (*U.S. News and World Report,* p. 64).

The Wisconsin Vocational Studies Center has just completed the following two reports that would be useful in designing prevention programs: (1) **Follow-Up of High School Non-Completers, 1967-1976,** which provides 14 recommendations to help potential and actual dropouts adapt to the occupational demands of society and attain their own personal goals; and (2) **Dropout Prevention in Wisconsin, Volume I,** which summarizes dropout prevention programs and activities in Wisconsin. (Both publications are available for a nominal fee from the Wisconsin Vocational Studies Center, University of Wisconsin, Madison.)

Finally, the design of prevention programs can be enhanced by communicating with other school personnel, particularly on the university and state education agency levels. A vehicle to facilitate such communication is the new publication entitled *Dropout Newsletter,* which was first issued on June 18, 1980. This newsletter summarized the proceedings of a conference held in North Carolina (May 27-29, 1980) that examined dropout prevention programs in several states and provided a mailing list of contact persons in each of the 50 states, Guam, Puerto Rico, and the Virgin Islands.

Cross-Validation Studies

It is likely that the regression equations will be less accurate when used on new samples, since any new group of people will not be identical to the groups that were used to develop the prediction equations. An indication of how well the equations will identify potential dropouts for a new group of students can be determined by the technique of cross-validation. To cross-validate any of the regression equations in this study, the original sample for the equation is randomly divided into two subgroups. One of the subgroups is used to develop a new prediction equation which is then used to predict whether the subjects in the other group are likely to drop out of school. Then the predictions are correlated with the actual status of the subjects; i.e., dropout or persister. A high correlation would indicate that the particular equation works for students other than those used to develop the equation.

Longitudinal Studies

The Office of Research and Planning in the Kentucky Department of Education is considering eliciting the cooperation of several districts in which high school counselors would allow the Office of Research and Planning staff to assist them in using the ninth grade regression equations to identify potential dropouts. For the next several years, all dropouts should be monitored. Hopefully, after counseling sessions, those identified will not leave school; hence, the dropout rate should decrease in the district.

Hopefully, the result of this process would reduce the dropout rate among those students who have been identified as potential dropouts. The method of identifying potential dropouts should also be improved by careful examination of those students who drop out of school, but were never previously identified as a likely dropout. Education must continue to view dropout identification as a means of furthering dropout prevention. Identification alone is of little value.

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